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09/903,334	07/10/2001	Christopher L. Chappell	42390P11376	8442

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EXAMINER
NGUYEN, ALAN V

ART UNIT	PAPER NUMBER
2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/1/01*

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9-14,17-24 and 27-32* is/are rejected.

7)☒ Claim(s) *7,8,15,16,25 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
            application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *5 and 6*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to because of the following formalities:

   a) The three lines shown as 4 in figure 1 implies that there are three mediums,

   but there is only a single medium, see page 5 line 32 "a transmission medium 4".

   b) Figure 4 shows a "reformat", but this is "reformatter 306" on page 10, line 23 in

   the specification.

A proposed drawing correction or corrected drawings are required in reply to the Office

action to avoid abandonment of the application. The objection to the drawings will not

be held in abeyance.

Specification

2.   The disclosure is objected to because of the following informalities:

   a) On page 1, line 13 "gto" appears to be a typographical error.

   b) On page 9, line 16, "204" should be changed to -- 304 --.

   c) On page 10, line 11, "data 330" is not consistent with the elements in figure 4.

   d) On page 11, line 13, "atomically" should be -- automatically --.

Appropriate correction is required.

Claim Objections

3.   Claims 28 and 29 are objected to because of the following informalities:

Regarding **claims 28 and 29** (both proceeding claim 30 on page 20), the claim

numbers are typographical errors and should be -- 31 -- and -- 32 --, respectively. (In

this office action, the claims will be referred to as claims 31 and 32, respectively)

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1-6, 9-14, 17-24, and 27-32 are rejected under 35 U.S.C. 102(e) as being

anticipated by Quigley et al. (U.S. 6,650,624), hereinafter Quigley.

Regarding **claims 1, 9, and 27** Quigley discloses a method **(see figures 75, 76,**

and 77; columns 67 and 68 discloses how the cable modem and cable modem

termination system cooperate in fragmentation of the payload for packets

transmitted by the cable modems) and device **(see figures 2, 7a, 7b)** comprising:

receiving a downstream management message at a client termination device

(receiving via the receiver 296 of figure 7A the downstream management

message as shown in figure 44 at a cable modem 12 of figure 2; "the cable

modem termination system, CMTS sends a grant or partial grant to the cable

modem", for example see column 67, lines 60-67), the downstream management

message comprising one or more bandwidth allocation elements (information

elements shown in figure 44 element 433 that define the time slots during which

individual cable modems transmit on a particular upstream channel; column 54,

lines 54-67) and a cyclic redundancy code or CRC (CRC 521 and the header check

sum, HCS 518 in figure 69);

storing bandwidth allocation information based upon selected ones of the

bandwidth allocation elements in a data buffer (storing bandwidth allocation

information based on selected service identifier SID, which specifies the time

interval for each cable modem, at step 609 in figure 75, in data buffers shown in

figures 8A element 533; see column 25, lines 45-57 and column 68, lines 9-40);

and

outputting the stored bandwidth allocation information from the buffer in response

to detecting a validation of the CRC (outputting from upstream buffer, USFIFO 445

after CRC/HCS verification 444, see fig. 8a and column 26, lines 17-42).

Regarding claim 17, Quigley discloses a system comprising:

a host processing system (DMA controller 522 in figure 7b);

a data bus coupled to the host processing system (bus 343 in figure 7A); and

a client termination device coupled to the data bus (cable modem 12 of figure

2), the client termination device comprising: a processing circuit (downstream

processor 342 in figure 7A); a receiving circuit comprising: logic to receive a

downstream management message from transmission medium coupled to a client

termination device **(MAC header processing and MAP parser in figure 7A)**, the

downstream management message comprising one or more bandwidth allocation

elements and a cyclic redundancy code or CRC **(the downstream message as**

structured per figure 44);

logic to store bandwidth allocation information in a data buffer based upon

selected ones of the bandwidth allocation messages **(storing bandwidth allocation**

information based on selected service identifier SID, which specifies the time

interval for each cable modem, at step 609 in figure 75, in data buffers shown in

figures 8A element 533; see column 25, lines 45-57 and column 68, lines 9-40);

and

logic to output the stored bandwidth allocation elements from the buffer to the

processing circuit in response to detecting a validation of the CRC **(outputting from**

upstream buffer, USFIFO 445 after CRC/HCS verification 444, see fig. 8a and

column 26, lines 17-42).

Regarding **claims 2, 10, 20, and 28** Quigley further discloses that the method/device

further comprises: associating one or more bandwidth allocation elements with the client

termination device based upon service identifier information **(associating MAPs with**

cable modems 12 of figure 12 based on SIDs at step 609 of figure 75. A MAP is a

packet that stores bandwidth allocation information communicated between the

CMTS and the cable modems; column 24, lines 48-53); and for each bandwidth

allocation element associated with the client termination device, storing bandwidth

allocation information based upon the bandwidth allocation element in the data buffer

(storing bandwidth allocation information based on the information element

shown as 425 in figure 44).

Regarding **claims 3, 11, 21, and 29** Quigley further discloses that the method/device

comprises: sequentially storing bandwidth allocation information based upon one or

more bandwidth allocation elements in a first-in-first-out data buffer at locations

indicated by a write pointer **(sequentially storing bandwidth allocation information**

in FIFOs as shown in figures 8A and 8B, and see column 55, lines 20-42, at

locations indicated by offsets, see column 55, lines 43-44); advancing the write

pointer after storing bandwidth allocation information for each bandwidth allocation

element **(it is inherent that the offsets are advanced to properly locations for**

fragmented data); and resetting the write pointer to an initial position upon detection of

an invalid CRC in the downstream management message **(it is inherent that the**

offsets are reset when the CRC/HCS validation step detects an invalid CRC/HCS).

Regarding **claims 4, 12, 22, and 30** Quigley further discloses that the one or more

upstream bandwidth allocation elements comprise at least one data grant bandwidth

allocation element and at least one data grant pending bandwidth element **(cable**

modem monitors MAPs for grant and grant pending for this SID, see column 69,

lines 64-65).

Regarding **claims 5, 13, 23, and 31** Quigley further discloses that the method/device

comprises scheduling an upstream transmission for a bandwidth allocation element

associated with a data grant bandwidth allocation element message upon detecting a

validation of the CRC **(operation of the cable modem in transmitting fragmented**

data is scheduled as shown in figure 77, see column 69 lines 56-58, and it is

inherent that this include CRC/HCS verification).

Regarding **claims 6, 14, 24, and 32** Quigley further discloses that the method/device

comprises: storing message header data in one or more first locations in a first-in first-

out (FIFO) data buffer, the message header data being based upon a message header

in the downstream management message **(storing message header information in**

FIFO 173 filtered from downstream MAC frames as shown in figure 46 and

disclosed in column 55, lines 20-42, where information stored is that which

facilitates desired processing, see column 54, lines 25-35); and storing the

bandwidth allocation information in subsequent locations in the FIFO data buffer

(storing MAP information in FIFO 161 as shown in figure 46 and disclosed in

column 55, lines 20-42).

Regarding **claim 18** Quigley discloses the system further comprises logic to initiate a

DMA transaction on the data bus in response to the processing circuit **(The CPU**

interface 328 provides a control for the DMA engine 329 in figure 8a; see column

25, lines 45-57).

Regarding **claim 19** Quigley discloses the system further comprises a cable modem

termination system **(fig. 1 element 1012; "headend", col 10 lines 40-67)** coupled to

the client termination device **(element 12; "cable modem")** by a transmission medium

(element 1020; "optical fibers").

Allowable Subject Matter

Claims 7, 8, 15, 16, 25, and 26 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims. Regarding claims 7, 15, and 25

the cited references taken individually or in combination fails to particularly disclose

where the combination of a method of <u>storing the message header data in the FIFO</u>

<u>data buffer at locations indicated by a write pointer; advancing the write pointer to one</u>

<u>or more of the subsequent locations; storing the bandwidth allocation information in the</u>

<u>subsequent locations; and upon completion of storing the bandwidth information in the</u>

<u>subsequent locations, storing data in the FIFO data buffer between the first locations</u>

<u>and subsequent locations</u>.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the state of the art with respect to the use of bandwidth allocation:

US Patent (5570355) to Dail et al

US Patent (6490727) to Nazarathy et al

US Patent (6633564) to Steer et al

US Patent (6377782) to Bishop et al

US Patent (6657983) to Surazski et al

US Patent (6553568) to Fijolek et al

US Patent (6154772) to Dunn et al

US Patent (6538656) to Cheung et al

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

AVN
April 28, 2004

RICKY NGO
PRIMARY EXAMINER